

045

CHOLECYSTECTOMY AND RISK OF ENDOMETRIAL CANCER *L. Morimoto, P. Newcomb, A. Trentham-Dietz, J. Hampton (Fred Hutchinson Cancer Research Center, Seattle WA 98109)

Obesity and hormone replacement therapy are associated with risk of both cholelithiasis and endometrial cancer. Because both conditions appear to be the result of elevated estrogen exposure, a history of cholelithiasis or cholecystectomy may provide a surrogate measure of a state of estrogen excess that is positively associated with endometrial cancer. To investigate this hypothesis, we conducted a population-based case-control study of Wisconsin women to examine the relationship of cholelithiasis, cholecystectomy, and endometrial cancer risk. 723 cases of endometrial cancer were identified from a statewide tumor registry; 2291 controls were randomly selected from population lists. History of gall bladder disease and surgery, weight, height, postmenopausal hormone use (PMH), and other factors were ascertained by telephone interview. Multivariate-adjusted odds ratios and 95% confidence intervals were calculated using unconditional logistic regression. After controlling for BMI and HRT use, cholelithiasis was not associated with increased risk of endometrial cancer (OR=1.1 (0.9-1.4)). Cholecystectomy, however, was associated with a modestly elevated risk of endometrial cancer (OR=1.4 (1.1-1.9)) independent of elevated endogenous or exogenous estrogens due to obesity or PMH use. These data suggest that the endogenous and exogenous hormonal factors associated with cholecystectomy are also related to increased endometrial cancer risk.

047

ASSOCIATION OF CALCIUM INTAKE AND COLORECTAL ADENOMA. *Peters U, Chatterjee N, Hayes RB, Schoen R, Church T, Bresalier RS, Gaudet M, Flood A, Schatzkin A, McGlynn K (Division of Cancer Epidemiology and Genetics, Rockville, MD 20852)

Calcium may reduce colorectal neoplasia by binding secondary bile acids and inducing apoptosis. Observational studies of calcium intake and colorectal cancer risk are inconsistent and two recent intervention trials of calcium supplementation found reduced risks for recurrence of adenoma, a precursor of colorectal cancer. We investigated the association between calcium intake and colorectal adenoma in the Prostate, Lung, Colorectal, and Ovarian (PLCO) Cancer Screening Trial, a randomized controlled screening study. Of 20,933 women and men undergoing a sigmoidoscopy between Sept. 1993 and Sept. 1997, 1,990 participants were diagnosed with a left-sided adenoma (i.e., descending colon, sigmoid, or rectum). Median total calcium intake in the study population was 1,146 mg/day (10th-90th percentile: 568-2,050 mg/day, as assessed by a 137-item food frequency questionnaire and additional questions on supplement use). We found an inverse linear dose response relation between total calcium intake and adenoma prevalence, by non-parametric regression analysis. Multivariate logistic regression comparing the 1st (lowest) quintile of total calcium intake as a referent showed odds ratios (OR) and confidence intervals (CI): 2nd quintile, OR=0.89 (95%CI 0.77-1.03); 3rd quintile, OR=0.89 (95%CI 0.76-1.04); 4th quintile, OR=0.89 (95%CI 0.75-1.05), and 5th quintile OR=0.77 (95%CI 0.63-0.93) (p value for calcium as continuous variable 0.002). Risks for aggressive adenoma (>1 cm in size or high-grade dysplasia or villous; n=770) showed similar reduction for total calcium intake (OR=0.72, 95% CI 0.53-0.97, 1st vs. 5th quintile). In conclusion, calcium intake was moderately strong inversely associated with colorectal adenoma.

046

THE ASSOCIATION BETWEEN APPENDECTOMY AND/OR TONSILLECTOMY AND THE RISK OF BREAST CANCER. THE ADVENTIST HEALTH STUDY. *S. Jog, R. Knutsen, P. Singh, S. Fonnebo Knutsen (Loma Linda University, Loma Linda, CA 92350)

A total of 17,467 white, non-Hispanic California females were included in a cohort study (The Adventist Health Study) in 1976 and followed for 6 years with respect to incident cancer. At baseline a lifestyle questionnaire containing detailed diet and medical history information was completed. As part of the medical history, persons were asked "Have you ever had a surgical operation to remove your: ". Two of the response categories were the appendix and the tonsils. Ascertainment of cancer was done through 1) record linkage with regional tumor registries and 2) review of medical records when the participant reported having had a tumor when responding to annual mailings. A total of 184 incident breast cancers occurred during the 6 year follow-up. At baseline 7,552 reported having had an appendectomy and 11,482 reported tonsillectomy. In age-adjusted Cox proportional hazards model, there was a positive association between these surgeries and the risk of breast cancer. Compared to women who reported none of these procedures, those with appendectomy only, had a relative Risk (RR)=1.23 (95% confidence interval (CI):0.7,2.16), those with tonsillectomy only, had RR=1.39 (95% CI:0.89,2.17) while those reporting both procedures had RR=1.56 (95% CI:1.03,2.37). These findings did not change in multivariate analysis, adjusting for education, Body Mass Index and the traditional risk factors for breast cancer. Our findings suggest that appendectomy and/or tonsillectomy may somehow affect the risk of breast cancer.

048

INTERDEPENDENCE OF FAMILY HISTORIES OF CANCER AND EXPOSURES IN ADULT ACUTE LEUKEMIA INCIDENCE. *Rauscher GH, Sandler DP, Poole C, Pankow J, Shore D, Bloomfield CD, and Olshan AF (University of North Carolina at Chapel Hill, Chapel Hill, NC 27599)

Family history of cancer, in part a marker of genetic susceptibility, might be used to reveal risk factors for adult acute leukemia that might otherwise be unobserved. We examined the interdependence between family histories of cancer and exposures in a case-control study of 779 adult leukemia patients and 625 population-based, random digit dialed controls. For each exposure, we estimated the relative risk for exposed individuals with a family history compared to unexposed individuals without a family history (RR11), as well as measures of synergy between family histories and exposures. Combined with any first-degree family history of cancer, exposure to occupational aromatic hydrocarbons appeared to increase incidence (RR11 = 3.4, 95% CI: 1.6-7.0), but not exposure to solvents in general, smoking, or diagnostic ionizing radiation. Combined with a family history of breast cancer, however, ever smoking (RR11 = 2.4, 95% CI: 1.2-4.8), general solvent exposure (RR11=1.9, 95% CI: 1.1-3.4), aromatic hydrocarbon exposure (RR11=3.8, 95% CI: 1.1-14), and diagnostic ionizing radiation exposure (RR11=2.1, 95% CI: 1.2-3.8) all appeared to increase incidence. Sibling breast cancer associations were stronger but less stable. Estimated measures of interdependence, while suggestive of synergies, were statistically unstable. Family history of breast cancer may be useful in evaluating these and other suggested leukemia risk factors. Breast cancer and leukemia share genetic susceptibilities, which may interact with exposures and contribute to adult acute leukemia incidence.